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GB 0656087 GB 0587918 GB 0534933

(58) Field of search
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Selected US specifications from IPC sub-class A63H

(54) Articulated toy

(57) An articulated toy has a wire frame (10) embedded within a foam body (21, 22). The foam body has two parts (21, 22) each formed by pressing foam into a mould which is a negative of the shape of the body of the toy, and cutting off the foam not pressed into the mould. The head, hands and feet of the toy are formed from discs (17, 19, 20) of plastics material attached to the wire frame (10). The wire frame (10) is formed of a plurality of wire strands, for example electrical power cable. A stand (Figure 6 - not shown) includes an upstanding spigot, over which a tubular part adjacent foot 20 is fittable.

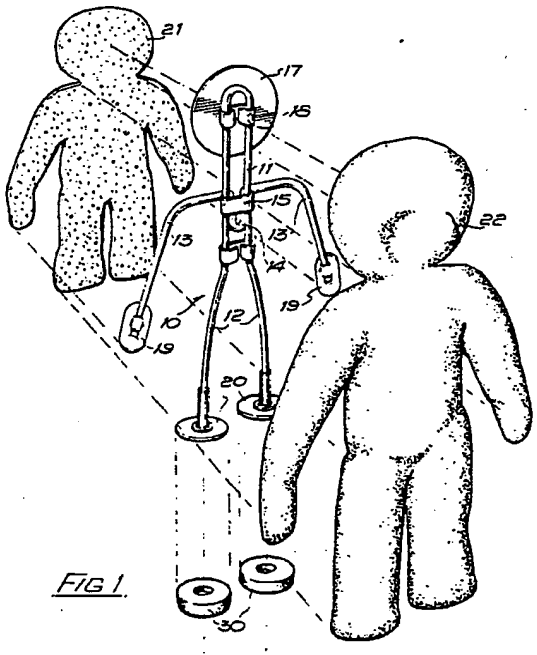

FIG 1.

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The drawing(s) originally filed was (were) informal and the print here reproduced is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1982.

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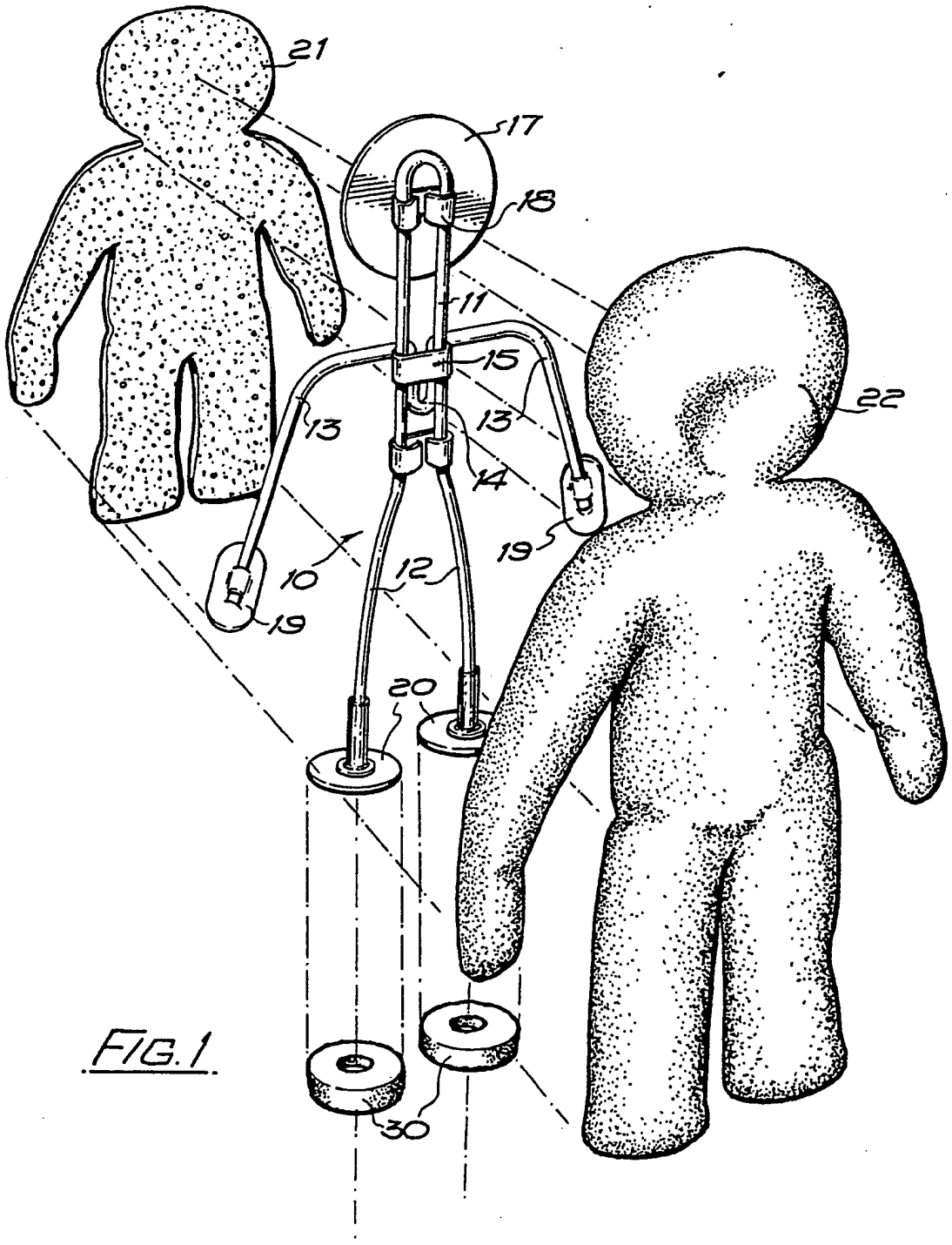

FIG.1

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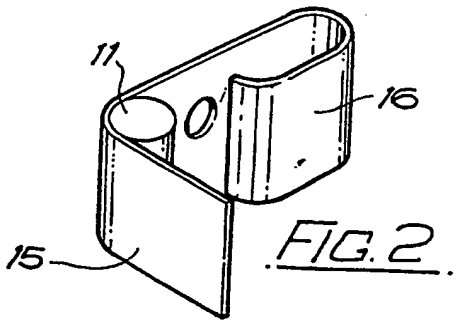


FIG. 2

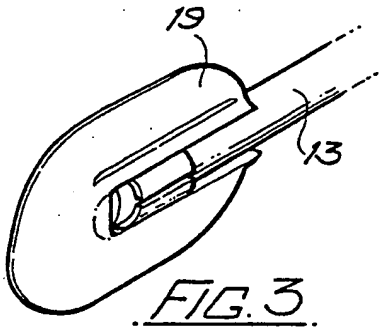
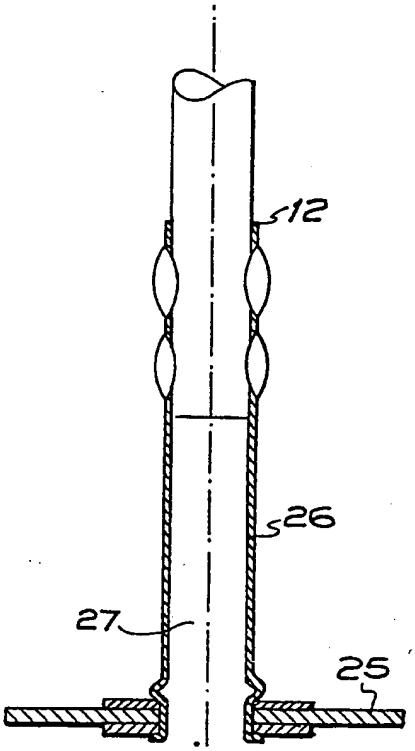


FIG. 3



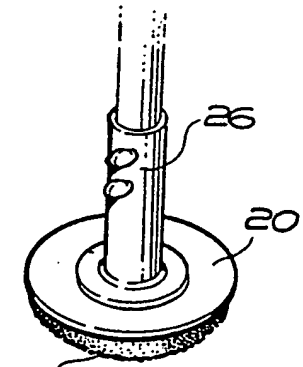


FIG. 5

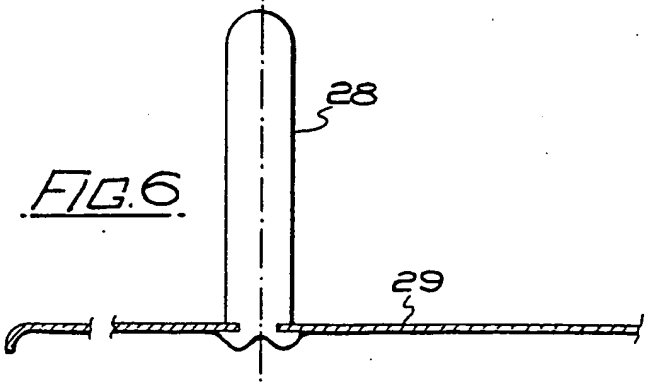


FIG. 6

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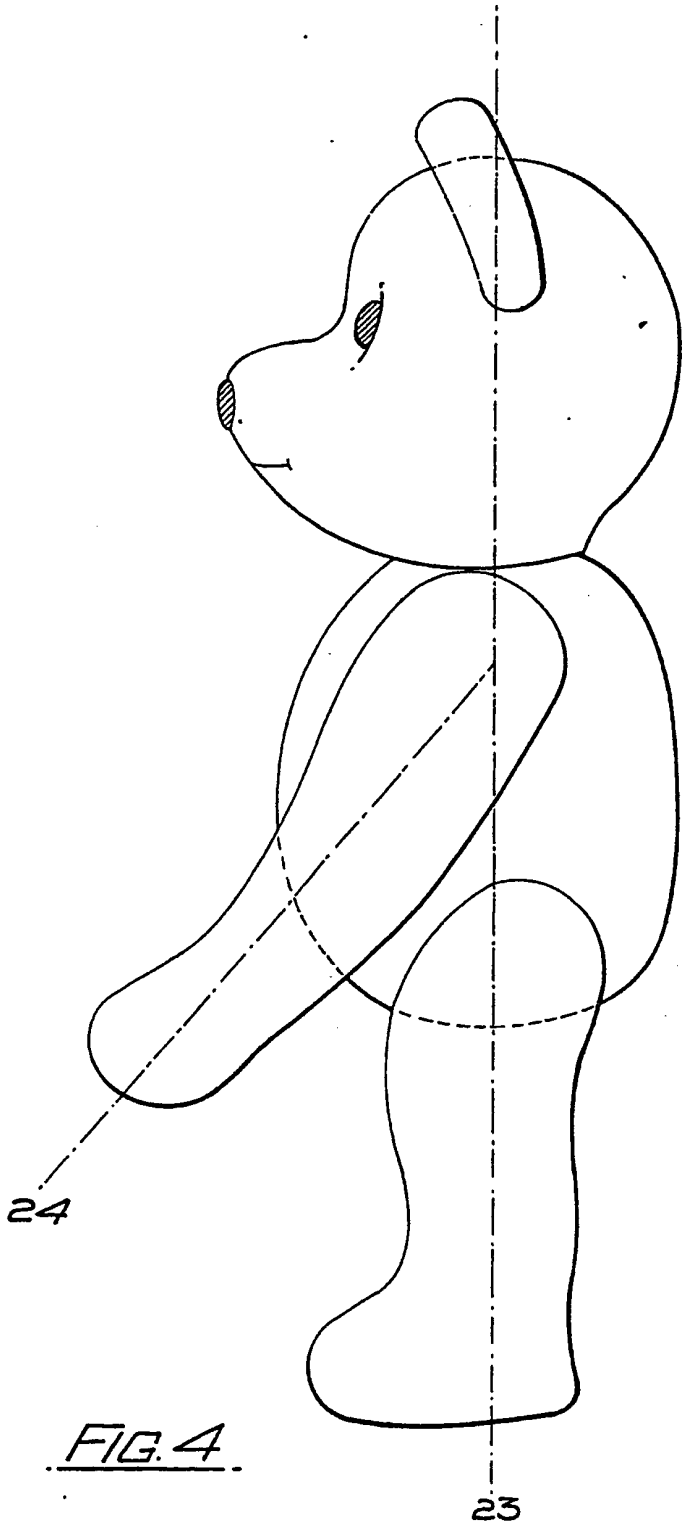

FIG. 4

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ARTICULATED TOY

The present invention relates to an articulated toy, such as a teddy bear in which the limbs are capable of being moved through various angles to simulate natural positions of the animal or person which the toy represents.

In the simplest known articulation systems, shoulder, neck, and hip joints are rotatable about a single axis. Clearly, this system cannot simulate real movement in an accurate way. It is also known to provide ball and socket joints, but these are expensive to produce, and have the further disadvantage that the ball and socket joint is unsightly. In a soft toy such as a teddy bear, the provision of a soft covering layer over a ball and socket joint would cause that joint to return to its original position after movement, rather than being able to stay in a fixed position, due to the resilience of the material around the joint.

The present invention seeks to overcome these problems by providing a wire frame embedded within a foam surround forming the body of the toy. The frame has extensions within the limbs of the toy body, so that movement of the limbs causes movement of the wires to a set position, thereby enabling the toy to be fixed to a predetermined shape, and then changed from that shape to another.

If single wires were used to form the frame, there

would be the risk of fatigue causing breakage of the wires. Therefore, the wires are preferably formed by a plurality of twisted strands and may be coated in e.g. a plastics material to further reduce the risk of breakage.

To ensure that the wires can be twisted in a direction parallel to their extension, e.g. to simulate wrist movement, plates of e.g. plastics material may be provided at or adjacent the ends of the wires to enable the wire to be gripped to twist it.

It is desirable that the toy be able to be mounted on a support stand, and to achieve this the feet may each terminate in a pad having a bore therein, which bore can receive a projecting lug on a stand. The toy can therefore be made to stand on either foot. The bores may be covered by a suitable cover when not in use.

As mentioned above, rather than the traditional kapok stuffing, the body of the toy is of foam plastics material. To shape the body, one suitable method is to form a mould corresponding to a negative of the shape, press the foam into that mould, and cut off the material that is not pressed into the mould. The result when the foam material is then removed from the mould is that the surface which was pressed into the mould returns to a flat shape, but the cut surface then adopts the "positive" of the mould. By providing two such moulded shapes, corresponding to the front and back of the toy, it is simple to position the frame between the flat surfaces of the foam shapes, and

weld or otherwise seal the two shapes together, to seal the frame within the toy.

An embodiment of the invention will now be described in detail, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 shows an exploded view of an articulated toy according to the present invention;

Fig. 2 shows a detail of a clip used in the toy of Fig. 1;

Fig. 3 shows a detail of an arm termination of the toy of Fig. 1;

Fig. 4 shows a side view of the completed toy;

Fig. 5 shows a detail of the foot termination of the toy of Fig. 1; and

Fig. 6 shows a cross-section of the foot termination.

Referring first to Fig. 1, an articulated toy comprises a frame 10 having a central body part 11 formed by an elongate loop of wire, two leg parts 12 and two arm parts 13. As can be seen, the arm parts 13 are formed from a single wire length with a loop 14 which is clipped to the body part 11 by a clip 15, a part of which is shown in more detail in Fig. 2. As can be appreciated from Fig. 2, the loop 14 of the arm parts 13 fit within the loop 16 of the clip 14.

A disc 17 of e.g. plastics material is clipped by a clip 18 to the body part 11 of the frame 10, to form the head of the toy. In a similar way, the arm parts 13

terminate in a plate 19, with Fig. 3 showing detail of the attachment mechanism. The plates 19 form the hand parts of the toy. The construction of the foot parts 20 will be discussed in detail later.

It is preferred that the wires forming the body part 11, the leg parts 12, and the arm parts 13 are formed from a plurality of twisted strands coated with a plastics material covering. Indeed, it has been discovered that electrical power cable is sufficiently stiff, and yet does not, to a significant extent, return to its original shape after bending. If the frame 10 is made of a single wire, it is found that it suffers too readily from fatigue, and it has not yet proved possible to form the frame from plastics material. Obviously, more complex frame materials could be used, but they would increase the cost of the toy, and it is believed would have little significant practical advantage over the twisted strand arrangement.

The body of the toy is formed by two body parts 21,22 made of e.g. foam rubber or foamed plastics material. Each of these body parts has a flat surface and a shaped surface which defines the external shape of the toy. In order to form these body parts 21,22, a block of foamed material is forced into a mould, which is a negative of the desired shape. Once the foamed material has conformed to the shape of the mould, the rest of the material is cut away, leaving a flat surface at the surface of the mould. However, when the foamed material is removed from the mould, it returns

to its original shape, with the cut surface then becoming shaped and the original flat surface (which was innermost in the mould) returning to its original flat shape. In this way, it is the cut surface which defines the shape of the toy. This method of shaping foam material is simple and efficient and also has the advantage of presenting a flat surface. This is useful because the flat surfaces of the two body parts 21,22 are then pressed together, with the frame 10 between them and welded or otherwise secured together, thereby encasing the frame 10 between the body parts 21,22. The flexability of the frame 10 enables the body to be shaped to any position, and retained in that position. One example of the resultant toy is shown in Fig. 4, with the dotted lines 23,24 marking the lines of the frame 10. The disc 17 and the plates 19 permit twisting movements to be imparted to the adjacent parts of the frame 10, in addition to bending movements which are possible due to the deformability of the wires forming the frame.

It is desired that the toy be capable of being able to stand when mounted on a suitable support. To achieve this, as shown in Figs. 5 and 6, each leg part 12 terminates in a foot part 20 which consists of a disc 25 attached to a tube 26, which is in turn attached to the corresponding leg part 12. The tube 26 is hollow, and the bore 27 therein is of a diameter suitable to receive a projecting lug 28 mounted on a support plate 29. By

insertion of the lug 28 into the bore 27, the toy may stand vertically with the plate 25 bearing on the plate 29 to resist bending movements. Of course, to achieve this, the wires of the leg parts 12 need to be sufficiently stiff to support the weight of the toy, without being so stiff that they cannot be bent. When the toy is to be used free of the stand 29, the bore 27 at the end of each leg part 12 may be covered by a soft cover 30 (see Fig. 1).

The resulting toy is easy to articulate, by bending the appropriate parts of the frame, and yet, since the frame 10 is wholly encased in the body parts 21 and 22, is soft to the touch. The body parts 21 and 22 may be covered with a suitable fabric coating to give the desired external effect.

CLAIMS

1. An articulated toy having a wire frame embedded within a foam surround, the foam surround forming the body of the toy.

2. An articulated toy according to claim 1, wherein the frame extends within the limbs of the body.

3. An articulated toy acccording to claim 1 or claim 2 wherein the frame is formed of a plurality of twisted wire strands.

4. An articulted toy according to any of the preceding claims wherein the wire frame is provided with plates at or adjacent its ends.

5. An articulated toy according to any of the preceding claims wherein the wire frame is coated with a plastics material.

6. An articulated toy according to any of the preceding claims wherein the wire frame is made of electrical power cable.

7. An articulated toy according to claims 2 to 6, wherein the feet of the toy comprise a disc attached to a tube which tube is attached to a leg of the toy.

8. An articulated toy according to any of the preceding claims wherein the foam surround comprises two parts secured together with the frame between the two parts.

9. An articulated toy substantially as described herein with reference to, and as illustrated in the accompanying drawings.

10. A method of producing an articulated toy comprising:

pressing foam material partially into mould recesses in two mould parts, each mould recess corresponding to a negative of the shape of a respective part of the toy,

cutting off foam material not pressed into the mould recesses, and

attaching the two toy parts together, with a wire frame therebetween.